

Perovskite and Perovskite Related Iridates

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Complex iridate oxides continue to be of interest and new compositions continue to be synthesized and characterized. The perovskite family of oxides, with its ability to accommodate most elements in most of their accessible oxidation states, is a versatile platform to obtain new complex iridates and to investigate their magnetic properties. We have prepared a series of new perovskite iridates as double, $Ln_2M\text{IrO}_6$ ($Ln = \text{La, Pr, Nd, Sm-Gd}$; $M = \text{Mg, Ni}$) triple ($\text{Ba}_3\text{NiIr}_2\text{O}_9$ and $\text{Ba}_3\text{Fe}_{1.56}\text{Ir}_{1.44}\text{O}_9$) and quadruple ($\text{Ba}_4\text{Ni}_2\text{Ir}_2\text{O}_{12}$) perovskite oxides, as well as some that are best described as A-site deficient double perovskites ($\text{Ln}_9\text{Sr}_2\text{Ir}_4\text{O}_{24}$ ($Ln = \text{La, Pr, Nd, Sm}$)). The synthesis, structures and magnetic properties of these iridates will be discussed.